

# Advice to mental health intervention for recruits based on an investigation for mental status of servicemen during basic military training

LI Hong-zheng<sup>1,2</sup>, MIAO Dan-min<sup>1</sup>, LEI Mei-ying<sup>2</sup>, CHEN Xiao-yan<sup>2</sup>, LIU Xiao-bing<sup>2</sup>

(1. School of Aerospace Medicine, Fourth Military Medical University, Xi'an Shanxi 710032, China;

2. Department of Mental Health, the 303rd Hospital of PLA, Nanning Guangxi 530021, China)

**Abstract:** Basic military training consists of highly regimented training in the context of fairly extreme psychosocial stressors, and some recruits suffered from rigorous disturbance in mind. Even if practical measures which include instructive psychological intervention have been taken to ameliorate the disturbance, some questions still have not been settled in our practical work for recruits. For example, what are the manifestations of psychological problems for recruits? What is the difference of the psychological problems at different stages during the training? A perspective investigation was found that emotion disturbances before the training and somatic symptoms at the end of the 1<sup>st</sup> month of training are remarkable, which can be viewed as, if needed, target symptoms in the psychological intervention. While recruits got more objective social supports in the later training and their sleep status had not shown significant change during the military training. Based on the investigations, we also submitted our suggestion to mental health intervention for recruits, and this may be helpful for health education in the army.

**Key words:** mental health; recruits; basic military training; intervention

Military administrations have attached great importance to the mental status and its related issues of servicemen, especially to those of the recruits.

Basic military training consists of highly regimented training in the context of fairly extreme psychosocial stressors (e.g., isolation from friends and family, constant monitoring and evaluation of behavior) as well as physical stressors (e.g., intense exercise, limited sleep) during the course of the training, some enlistees can't stand the pressure from the training conditions, and suffer from many kinds of mental disorders or general mental health problems. An investigation (Klein & Hawes, 1991) showed that the six most common diagnostic types of mental health problems were depressive disorder, adjustment disorder, traumatic stress disorder, posttraumatic stress disorder (PTSD), alcohol abuse or alcohol dependence, anxiety disorders and problems in interpersonal relationship, among which the overwhelming diagnostic type was adjustment disorder, accounting for 3.33% of the total number of the recruits. For general mental problems, it was found (Schei, 1994) that about 48% of the recruits suffered from them.

---

LI Hong-zheng, M.D., associate professor, postdoctoral in applied psychology, Department of Mental Health, the 303rd Hospital of PLA; research fields: applied psychology and psychiatry.

MIAO Dan-min, Correspondence author, Ph.D., professor of Department of Psychology, School of Aerospace Medicine, Fourth Military Medical University; research field: psychological measurement.

LEI Mei-ying, Master, Department of Mental Health, the 303rd Hospital of PLA; research field: psychiatry.

CHEN Xiao-yan, Department of Nursing, the 303rd Hospital of PLA; research field: nursing management.

LIU Xiao-bing, Master, Department of Mental Health, the 303rd Hospital of PLA; research field: psychiatry.

## 1. Background

Mental health problems maybe have negative effects on individuals themselves, unit performance and administrations for the units, and in some conditions it maybe lead to grave military accidents. It was confirmed (Crawford & Fiedler, 1991) that psychological problems such as depression, personality deviation and excessive anxiety were a major cause of first-term enlisted attrition in the U.S. Navy, at least 7% of the individuals were attrited for psychological reasons, the amount of military expenditure was wasted. Up to now, we have not found relative reports about the effects of psychological problems on the administration for units in China; it is the same case with the military accidents. However, we couldn't deny the negative effects of psychological problems in this aspect.

There are three practical measures which include psychological screening for recruits before the enlistment, attrition suggestion or hospitalization for the psychosis patients, and instructive psychological intervention for general mental health problems. But now, there still has no standardized screening instrument for all kinds of psychiatric disorders used routinely at the time of accession into the military service, and likewise there has no standardized screening procedure that can prevent effectively some otherwise healthy recruits from developing psychiatric symptoms. Therefore, mental health interventions are the effective measures for the recruits enlisted in the army during the basic training, and recent researches also showed some evidences for these work. For example, it was found (Schei, 1994) that interpersonal relationship and economical status were related to mental status. Similarly, changes in living conditions and social support were risk factors of mental disorder.

However, many studies reported in literatures were cross-section investigations, and few factors were concerned in some researches. In fact, some questions have not been settled in our practical work for recruits. For example, what are the manifestations of psychological problems for recruits? What is the difference of the psychological problems at different stages during the training? Whether personality trait, coping style, and social support have relation to sleep conditions of recruits or not?

This paper will address those questions mentioned above, and the purposes in the studies are: (1) To investigate the characteristics of the recruits' mental status and its related issues in different phases during the basic military training. (2) To explore the related factors which have influence on the sleep conditions of recruits. (3) To offer suggestion to the mental health intervention for recruits during the basic military training based on the investigations mentioned above.

Permission was obtained from several levels of the military authorities to perform the research, and assurance that the methods used in this study protected the rights of the recruits was acquired from all the commanding officers and a committee of a military hospital. Each recruit was provided with the opportunity to accept or decline participation in the study.

## 2. Investigations for mental status of recruits during basic military training

### 2.1 Methodology

#### 2.1.1 Sample

The target population consisted of 1432 male recruits who were sampled randomly from a field emergency reaction unit. Upon their arrival at the camp, the recruits were assigned to platoons, and each platoon was made up of 30-40 recruits. 60 platoons were selected in our studies. The conclusion criteria of recruits were: (1) Land

military recruits on active duty during the sampling time frame; (2) recruits selected for this survey; (3) the recruits had to complete the full basic military training.

#### 2.1.2 Measure instruments

All the instruments meet the need of psychometrics, characterized as reasonable validity and reliability (WANG Xiang-dong & WANG Xi-lin, 1999).

The instruments are as follows, *Symptom Checklist* (SCL-90-R) which assesses general psychiatric symptoms has 90 items for evaluating special experience during the past 7 days. *Social support scale* (SSS) which assesses the conditions of social support contains 12 items ascribing to 3 dimensions (the subjective social support, the objective one, and the support utility). *Eysenck Personality Questionnaire for adults* (EPQ-adults) revised for Chinese which assesses personality contains 88 items assessing 4 dimensions of personality trait (Neuroticism, Extroversion or Introversion, Psychoticism, and Lie). *Simple Coping Style Questionnaire* (SCSQ) which assesses coping style includes 20 items ascribing to 2 dimensions (positive coping style and negative coping style). *Pittsburgh Sleep Quality Index* (PSQI), a 19-item self-report questionnaire that assesses sleep quality and disturbances occurred during the past month, yield seven component scores (subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleeping medication and daytime dysfunction).

#### 2.1.3 Procedure

All the data were collected by the investigator and a panel of colleagues during three sessions. SCL-90, SCSQ, and PSQI were collected respectively before the training (time 1), at the end of the 1<sup>st</sup> month of training (time 2), and at the end of the 2<sup>nd</sup> month of training (time 3). EPQ was collected before the training and at the end of the 2<sup>nd</sup> month of training, while SSS at time 2 and at time 3. Demographic data were collected before the training.

#### 2.1.4 Statistical methods

The distribution of a number of quantitative variables was skewed, and was consequently analyzed with both parametric and non-parametric statistical methods. Essentially the same results were obtained by both methods, and the following presentation is based on uni-and multivariate analyses of variance. Results based on F analysis, paired-samples T test, and Dunnett-test. All the data were analyzed by SPSS10.0.

### 2.2 Results

#### 2.2.1 Demography

All the participants were male recruits, with education levels largely (50.2%) for 8 years, and the mean age was 18.51 years (SD=1.08 years). In the total pool of the recruits, 69.4% of them were from the country, and the rest were from the city.

#### 2.2.2 Mental symptoms of SCL-90-R in different training phases

Somatic symptoms at time 2 test was the highest, then at time 1 test and at time 3 test in sequence ( $P<0.01$ ). The scores of the other components (obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoid, psychiatric) of SCL-90 at time 1 test were the highest, then that at time 2 test and time 3 test respectively.

#### 2.2.3 Social support in different training phases

No statistically significant differences were found between the scores of subjective social support in different time points during the training ( $P=0.93$ ), while the scores of objective social support increased and support utility decreased after the training ( $P<0.05$ ).

#### 2.2.4 Difference of the score of EPQ during the training

The scores of three dimensions, i.e. Intro-and Extroversion, Neuroticism, and Lie, decreased while that of

psychoticism increased after the basic training ( $P < 0.01$ ).

#### 2.2.5 Characteristic of SCSQ during the training

Before and after the training, there had statistically significant differences respectively in the scores of the two components (positive coping style and negative coping style) of SCSQ ( $P < 0.05$ ). The scores of SCSQ before the training were the highest, then at the end of the 1<sup>st</sup> month and the 2<sup>nd</sup> months of training in sequence.

#### 2.2.6 Sleep quality and its related factors

##### (1) Differences of sleep quality during the training

No significant difference among the total score of PSQI were found during the training ( $P = 0.76$ ). The score of function disorders caused by sleep trouble in the daytime at time 2, as well as that of sleep quality, was lower than that of at time 3.

##### (2) Related factors affecting sleep

The overwhelming influence on the score of PSQI was from symptom index of SCL-90-R, although neuroticism trait, psychoticism trait, education level, lie trait, subjective social support, and support utility were also significant variables determining the score of PSQI. All the seven significant variables were the main related factors affecting recruits' sleep.

### 3. Discussion and suggestion

#### 3.1 About mental symptoms

General mental problems can be seen in healthy individuals, it is concerned with some unusual surroundings to a large degree, and its severity does not meet the diagnostic criteria of psychoses. SCL-90 is an applicable self-rating instrument to evaluate mental symptom and severity. It is broadly used in the assessment of recruits' mental status in China. However, some results of the related reports differed from each other, for example, our studies (LI Hong-zheng & CHEN Qiong-ni, 2004) showed that anxiety symptoms ameliorated during the training, whereas Meta analysis of us (LI Hong-zheng & LI Xue-rong, 2003) showed no significant differences. The inconsistency of the results may be ascribe to that of the sample size or sample time.

The results of these studies were supported by those of others, and it was found that emotion problems, for example, depression, anxiety, and phobia, were very prominent before the basic military training. For "somatic" symptoms, our results showed that these complaints were rather obvious at the end of the 1<sup>st</sup> month training. We speculated that training itself was a contributing factors to it. This view can be explained by other studies (Clemons, 1996), which showed that physical training at week 3 (which was the rigorous training time) could result in many kinds of body symptoms. Therefore, the term of "somatic" used here can not be understood as the meaning in psychology which implicates the body expression of one's psychic struggle (LI Hong-zheng & LI Xue-rong, 2003).

In addition, our results were compatible with those of other authors (Lerew & Schmidt, 1999), in their researches on servicemen in Finland; it was found that the psychopathological level of recruits decreased during the training, which indicated that emotion intervention for recruits before the training was of great importance. However, it is not the case with all the symptoms, a mild and moderate level of anxiety is the most beneficial and may help the individual to function more proficiently and effectively. It is only when the anxiety level exceeded such a degree that a recruit can't stand and the functioning capacity is greatly induced that anxiety intervention is needed.

What were the factors that contributed to the emotion disturbance of recruits? It has been stated (Clausing & Company, 1991) that training during the first 3 weeks was the most difficult. A heavy workload of classroom

instruction, hours of military training, physical fitness training, and further instruction by the company commander left the recruits with minimal free time, then the vigorous training conditions maybe resulted in the emotion disturbance. As for symptom fluctuations, the differences in intensity of stressors, adaptability of recruits and physical training itself during the training played important roles in them.

According to the current study, it was recommended that anticipatory guidance maybe useful to afford to the recruits throughout the training, and particular attention should be paid at the beginning and the end of the training for emotion disturbance intervention. This guidance should include classes on how to recognize signs of emotion disturbance, techniques of how to prevent “somatic” symptoms at the end of 1<sup>st</sup> month training, and other specific measures to reduce the effects of symptoms on recruits, such as relaxation therapy, progressive muscle relaxation, and etc.

### **3.2 About social support**

From both a scientific and a practical viewpoint (Thoits, 1983), there were two categories of social support. One was objective support which included direct aids of matters and social network. The other was subjective social support which included emotion support, for example, feelings of being respected and approvals from other individuals.

Our findings showed that there had no significant differences in subjective social support during the two months of basic military training. However, objective social support increased during the training. It made clear that direct matter support or degree of intimacy with comrades in arms ameliorated in the basic training, but this was not the case for subjective emotion support.

It had been proved that social support could provide prevention from stressful situation. We saw great potential in a practical perspective of social support for recruits, and realized that it was of great importance to take social support into accounts for recruits’ mental intervention.

### **3.3 About personality trait**

EPQ used for assessment of personality trait has reasonable reliability and validity. Samples in our studies aged 16-22 years old, the mean age was 18 years. From the viewpoint of age, personality trait of recruits is rather stable, but results in our studies showed that scores on three dimensions of EPQ (intro- or extroversion, neuroticism, and lie) decreased while that on psychoticism increased after the basic training. There were at least two factors contributing to the differences in scores of EPQ, one was the fact that personality trait itself was not absolutely stable, especially in some unusual conditions. The other was the effects of mood on the scores of EPQ. In our studies, the differences of emotion status are significant before and after the training, mood status maybe has effects on personality strait, or just the reverse.

Scores on neuroticism and intro- or extroversion suggested that characteristics of recruits might be transformed during the basic military training; recruits will behave imperturbably or pure-heartedly. What it needs to be pointed out was that, although psychoticism may be a vulnerable factor for an individual to suffer from psychoses in some unusual conditions, healthy recruits also had psychoticism trait, it is not true to be sure that recruits run higher risks of psychoses during the training. However, we can’t explain why the scores of intro- or extroversion, neuroticism, and lie scale decreased while that of psychoticism increased in our descriptive investigations, further researches are needed in the future.

### **3.4 About coping style**

Coping styles are the important contents in psychological studies, they can be classified into two categories, one is positive coping (approaching problems) and the other is negative coping (avoiding problems). Our studies

identified the fluctuations of the two categories of coping style, and found that the managements of coping style decreased along with military training. The results were also supported by previous research, in which it was found (Avison & Gotlib, 1994) that vigorous stresses confronted by the recruits in basic military training, especially at the first week training, made recruits employ more coping style so as to adapt the training.

In the studies, two kinds of coping styles existed at the same time and had the same changing tendency during the training, and this proved that not only positive coping styles but also negative coping styles were employed by recruits during the training. It also proved that we should attach importance to negative coping styles when mental health intervention was needed for recruits. In fact, negative coping styles, for example, accepting facts and self-consoling, had positive effects on psychic conflicts. For concrete coping styles, it was found (Clemons, 1996) that problem solving was methods used most frequently among recruits, followed by self-controlling and positive reappraisal, and escape-avoidance was the least used coping styles among recruits.

### **3.5 About sleep status**

Adequate sleep is necessary for recruits to ensure military readiness and fitness for duty, and it may help to reduce accidents related to excessive daytime sleepiness. It is critical that military health care providers be aware of the sleep status among recruits. Our studies showed that there were no significant differences of the whole sleep status during the training, but group differences in some components of PSQI did not consistently have the same direction. As well as sleep quality, function disorders in the daytime during the 1<sup>st</sup> month training were milder than those of the 2<sup>nd</sup> one. However, sleep disorders, such as difficulties in dropping asleep, wake early, disruption of sleep, nightmare, and etc. In the training of the 1<sup>st</sup> month was more serious than it in the 2<sup>nd</sup> one. Analyses for related factors affecting sleep status showed that the overwhelming influence on sleep status was first from symptom index, and then from neuroticism trait, psychoticism trait, education level, social support, and etc. in sequence. The results of this studies was supported by those of our previous studies (LEI Mei-ying & LONG He-qing, 2003)

According to the results of the investigations mentioned above, synthetic intervention techniques and individual guidance may be all critical to the mental health care for recruits during the basic military training.

### **References:**

- Avison W. R. & Gotlib, I. H. (1994). *Stress and mental health contemporary issues and prospects for the future*. Plenum Press.
- Clausing and Company: Great Lakes Naval Training Center. (1991). Waukegan, IL, Clausing, 2-5.
- Clemons, L. P. (1996). Monitoring anxiety levels and coping skills among military recruits. *Military Medicine*, 161(1): 18-21.
- Crawford, S. L. & Fiedler, E. R. (1991). Development and current status of USAF mental health screening. *Mil Med*, 156(11): 596-599.
- KleinS, Hawes D. J. & Martin T. (1991). Why recruits separate early. RAND publication series R-3980-FMP. Santa Monica. CA.RAND Corp.
- LEI Mei-ying, LONG He-qing, LIU Xiao-bing, et al. (2003). Self-reported sleep quality and its correlates in recruits during the basic military training. *Chinese Journal of Behavioral Medical Science*, 12(4): 438-440.
- Lerew D. R., Schmidt, N. B. & Jackson R. J. (1999). Evaluation of psychological risk factors: Prospective prediction of psychopathology during basic training. *Mil Med*, 164(7): 509-513.
- LI Hong-zheng, CHEN Qiong-ni, LEI Mei-ying, et al. (2004). Self-reported anxiety symptoms and their correlates in recruits during the basic military training. *Chinese Journal of Behavioral Medical Science*, 13(4): 455-456.
- LI Hong-zheng, LI Xue-rong, LEI Mei-ying, et al. (2003). A meta analysis for the change of mental health state of recruits in Land army before and after the basic military training. *Chinese Mental Health Journal*, 17(4): 272-275.
- LI Hong-zheng, LI Xue-rong, LI Yi-hong, et al. (2003). Self-reported somatic symptom and its correlates in recruits during the basic military training. *Chinese Journal of Clinical Psychology*, 11(1): 39-41.
- Schei E. (1994). A strengthening experience? Mental distress during military service: A study of Norwegian army conscripts. *Soc Psychiatry Epidemic*, 29: 40-45.
- Thoits P.A. (1983). Dimentions of life events that influence psychological distress: An evaluation and synthesis of the literature. In: Kaplan H, et.al. (Eds.). *Psychological stress*. (1st ed.). New York, Academic Press, 33-103.
- WANG Xiang-dong, WAMG Xi-lin, MA Hong, et al. (1999). *Rating scales for mental health*. Chinese Mental Health Journal Press.
- (Edited by ZHOU Qun-ying and ZHANG Dong-ling)